FACT SHEET 1

SAFEGUARD OUR SEABED

The Looming Threat of Bulk Marine Sediment Mining

What is the concern?

In 2012 and 2014, the Department of Mineral Resources (DMR) granted three prospecting rights for marine phosphate over a considerable portion of South Africa's marine environment.

Together, these prospecting areas total approximately **150 000 km^2 or 10%** of our exclusive economic zone.

Although a prospecting right does not provide a legal entitlement to a mining right, it provides an expectation that mining will be allowed. In addition to the grant of these rights, there are a number of other indications that our government plans to develop a bulk seabed mining industry in South Africa. Department of International Relations and Cooperation (DIRCO) and DMR have announced the development of a Seabed Mining Roadmap aimed at developing the seabed mining industry. Furthermore, a number of media releases allude to DMR's intentions to develop seabed mining in our exclusive economic zone.

What is bulk marine sediment mining?

New methods and technologies have led 'to exponential increases in the achievable mining rate of the sea floor'. This has culminated in a technology named **Trailing Suction Hopper-Dredge (TSHD).**

This involves dredging and removing sediment on the seafloor at an alarming rate, removing a layer of sediment of up to 3 meters deep. A dredge-head of around 11m wide is dragged on the seafloor, cutting a trench. The dredge-head has cutting teeth and water jets that crush hard sediment. The sediment is then suctioned by a tube where it is distilled, separating larger sediment from fine particulates. Any excess water and fine particulates are released back into the water column. This creates a giant plume of sediment, equivalent to a dust cloud that covers an area far greater than the mined area, burying and smothering seabed ecosystems[1].

This technology can dredge more than 100 000 m² of sediment per day. A proposed marine phosphate mining project in Namibia is expected to remove up to 5.5 million tonnes of sediment annually[2].

If mining were to proceed in the areas currently under prospecting rights in South Africa, it would in all likelihood involve such technology.

What are the impacts of bulk marine sediment mining?

There is relatively limited knowledge on the impacts of bulk marine sediment mining on marine environments. However, preliminary assessments outline considerable and irreversible impacts on marine ecosystems and fishery resources, signifying the need for longer term investigations.

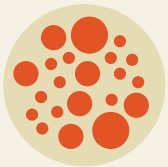
These studies say that likely devastating impacts coupled with lack of knowledge on bulk marine sediment mining, warrant extreme caution.

Bulk marine sediment mining would permanently alter and destroy marine habitats and breeding, spawning and feeding areas of fish stock both within the mined area and surrounding areas. Several independent impact assessments outline numerous negative impacts, which include[3]:

Direct destruction of seabed organisms and habitats, the building blocks of marine ecosystems

Direct harm to breeding, spawning, feeding and aggregation areas for fish species

Flight of pelagic and demersal organisms from disturbance, noise and pollution



Raised turbidity impacting on many species, particularly marine predators

Reduced light penetration impacting on photosynthesis

Increased organic fallout causing oxygen depletion and die off

The release of heavy metals which affects entire marine food webs

Release of hazardous substances such as radioactive materials, methane and hydrogen sulphide

Significant biogeochemical and microbial impacts

Soluble phosphate increase algal blooms and harm shellfish and other species

Burial and smothering of seabed organisms in the mining and surrounding areas

Major alteration of the physical, chemical and biological equilibria

Negative impacts on zoo-plankton, a key building block of marine ecosystems

Poor quality sea water which could hamper the aquaculture industry

Noise and hazardous waste could directly impact on marine mammals

Why marine phosphates?

Our seabed is rich with phosphorite bearing sediments. These are abundant along the outer shelf of the seafloor and extend to the shelf edge and slope break. There are three main types of phosphorite found on our seafloor: rock phosphorite, pelletal phosphorite (sand size) and concretionary phosphorite (pebble sized). These three types are commonly found together, completely bound in the sediment layer of the seafloor.

Phosphorous is one of the main three macro-nutrients that are essential for plant growth. The major use (88%) of phosphorous is fertiliser for agriculture.

Whilst there is not scientific consensus, some research suggests that global phosphorous reserves are dwindling and peak phosphorous could be reached in coming decades.

An argument asserted in all three applications for prospecting rights – in our EEZ and applications in other jurisdictions - is that phosphate is critical for food security and terrestrial phosphate supplies are dwindling whilst demand is increasing. This argument is used to justify bulk marine sediment mining.

Preliminary investigations indicate that this argument is without merit. South Africa does not have a shortage of phosphates and our farming is increasingly criticised for its excessive use of inorganic fertilisers because of the associated long term impacts on soil health.

Furthermore, an excess of phosphates causes a multitude of negative environmental impacts when it leaches into streams and rivers. These include risks to human health and death of marine species and livestock. There are viable alternatives for ensuring continued phosphate supplies. These include recycling phosphates through composting or using organic manure and phosphate recovery from sewage treatment facilities[4].

10 REASONS WHY BULK MARINE SEDIMENT MINING IS A BAD IDEA

1 Destructive technology

The type of technology employed for bulk marine sediment mining, Trailing Suction Hopper-Dredge (TSHD) has not been tested anywhere else in the world.

IT IS THE EQUIVALENT OF STRIP MINING THE OCEAN FLOOR WITH AN ADDITIONAL TOXIC PLUME.

2 Limited knowledge

There is relatively limited knowledge of the impacts of seabed mining alongside limited knowledge of the ecological importance of seabed ecosystems. Such gaps in knowledge require adherence to the precautionary principle.

3 Environmental impact

Bulk marine sediment mining would have severe and irreversible impacts on marine ecosystems. There are no feasible ways to mitigate these impacts and no standards or protocols that can be put in place to reduce its destructive effect.

4 International law and regional treaties

South Africa is a signatory to Benguela Current Convention which requires us to work together in managing shared marine resources. It would be irrational for South Africa to allow the very mining activity on which Namibia has placed a moratorium when our activities will devastatingly impact shared fish stocks.

5 Impacts on fishing and tourism

The socio-economic impacts of seabed mining have not been assessed. Our fishing industry provides significant socio-economic benefits including jobs, livelihoods and food security benefits and small scale fishers and communities directly depend on healthy marine ecosystems for livelihood and survival.

6 Scale and location

The scale and location of the prospecting rights granted are irrational and inappropriate. The prospecting areas are vast, together totalling more than 150 000 km^2. These areas coincide with several existing fishery footprints, critically endangered ecosystems and habitats earmarked for protection in offshore marine protected areas. Some of the benthic habitat types don't exist anywhere else.

7 Food security

South Africa does not have a shortage of phosphates for agriculture. Excessive phosphate causes a multitude of negative environmental impacts when it leaches into streams and rivers. There are viable alternatives for ensuring continued phosphate supplies including recycling phosphates through composting and phosphate recovery from sewage treatment facilities.

8 Legal and governance challenges

South Africa does not have the legal and governance framework to appropriately and responsibly regulate and manage seabed mining.

9 International caution

Bulk marine sediment mining has commenced in no other country's exclusive economic zone due to environmental and socio-economic risks. Countries that have received applications have refused consent, placed a moratorium on such operations or established a permanent ban.

10 Our natural heritage

Our marine environment is remarkably beautiful, complex, rich and abundant. The health of our country – our people and our environment and therefore our economy - depends on the health of our ocean. We have a duty of care towards our ocean, both for its intrinsic value and for our own well-being.

What are we doing to Safeguard our Seabed?

SAFEGUARD OUR SEABED COALITION

In response to concerns that unsustainable seabed mining will soon be authorised in South Africa, the Centre for Environmental Rights, with its partner WWF-SA, started a project entitled Safeguarding our Seabed. A key objective of the project is to achieve a moratorium on bulk marine sediment mining in South Africa.

In 2015 a group of organisations that shared the common interest in pursuing a cautious approach towards seabed mining formed a coalition. The **Safeguard our Seabed Coalition** includes organisations that represent the interests of commercial and small scale fishing and environmental and environmental justice organisations. It includes:

WWF | RESPONSIBLE FISHERIES ALLIANCE – WORKING TOGETHER TOWARDS RESPONSIBLE FISHING | OCEANA GROUP | VIKING | Sea Harvest | I&J | BirdLife South Africa | PIONEER FISHING

www.rfalliance.org.za

MASIFUNDISE — www.masifundise.org.za

PLAAS Institute for Poverty, Land and Agrarian Studies — www.plaas.org.za

AOCA AFRIOCEANS CONSERVATION ALLIANCE — www.aoca.org.za

FishSA — www.fishsa.org

WWF — www.wwf.org.za

South African Deep-Sea Trawling Industry Association — www.sadstia.co.za

International Ocean Institute Southern Africa — www.ioisa.org

BirdLife South Africa Giving Conservation Wings — www.birdlife.org.za

Centre for Environmental Rights — Advancing Environmental Rights in South Africa — www.cer.org.za

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What do we want? A moratorium

The Safeguard our Seabed Coalition believes that a moratorium on bulk marine sediment mining should be established until, at minimum, appropriate impacts studies have been conducted, and a strategic environmental assessment has been concluded so that knock-on effects of impacts on established and renewable industries, such as fisheries and tourism are known.

The moratorium should be in place until the following conditions are met:

1. Alternatives to bulk marine sediment mining have been openly considered
2. A strategic environmental assessment on bulk marine sediment mining has been conducted
3. Relevant policies, strategies, laws and regulations have been formulated and implemented
4. Adequate baseline information has been collected
5. A representative network of well managed marine protected areas (MPAs) has been established
6. A network of no-go-areas for mining have been established
7. Standards to minimise damage of mining operations have been promulgated
8. Liability for environmental damage is assigned to mining operators, appropriately assessed and financial provision is strictly collected and ring-fenced[5]

Who and how can we establish a moratorium?

There are two legal mechanisms for establishing a moratorium on bulk marine sediment mining. Either the Minister of Mineral Resources may prohibit a specific mining activity or the Minister of Environmental Affairs may prohibit the granting of environmental authorisations for a specific activity.

Section 49 of MPRDA empowers the **Minister of Mineral Resources** to prohibit or restrict a category of mining activities. This is to be guided by the 'national interest' and 'the need to promote the sustainable development of the nation's mineral resources'. There are no limitations on the discretion in terms of the time period and conditions of a moratorium. The Minister has used this power in the past to declare a nationwide moratorium on all mining and prospecting applications in South Africa (started September 2010 – April 2011) while a full audit was conducted on mining and prospecting rights issued since 2004. The Minister also used this power for a moratorium on fracking.

Section 24(2A) of NEMA empowers the **Minister of Environmental Affairs** to 'prohibit or restrict the granting of an environmental authorisation by the competent authority for a listed or specified activity in a specified geographical area.' Such powers should be used in accordance with a 'risk averse and cautious approach" and to ensure the "protection of the environment, the conservation of resources or sustainable development'.

Bulk marine sediment mining warrants the use of these powers, particularly in light of the lack of knowledge and significant and irreversible impacts associated with it. The Safeguard our Seabed Coalition is pursuing both of these channels in order to achieve a moratorium.

References and further reading:

1. Allsopp, M. et al. (2013). Review of the Current State of Development and the Potential for Environmental Impacts of Seabed Mining Operations**. 2.** Namibian Marine Phosphate, 'Sandpiper Project: Proposed Recovery of Phosphate Enriched Sediments from the Marine Mining License Area no. 170 off Walvis Bay, Namibia – Environmental Scoping Report(Final Report, April 2012) **3.** EPA Northern Territory (2012). Interim Report: Seabed Mining in the Northern Territory**. 4.** Vidima, S and von Blottnitz, H. (2016). Assessing the Desirability of Marine Phosphate Mining amongst Strategies for a Sustainable Supply of Phosphates. A review of the Phosphate Lifecycle, Impacts and Strategies for Sustainable Use in the South African Context. **5.** WWF-SA. (2012). Position Paper: Bulk Deep-sea Mining.